

AMENDMENTS TO THE CLAIMS

Claims 1-8. (Canceled)

9. (Currently Amended) An apparatus comprising:

a low pressure deposition chamber maintained at a substantially uniform pre-determined pressure;

— a substrate arranged within the deposition chamber, the substrate comprising an
— impurity incorporated in a thin film formed in the deposition chamber; and

— an impurity cell located entirely within the deposition chamber and the impurity cell is not coupled to a heat source so as to provide the impurity by desorption due to low pressure in the deposition chamber, the impurity cell comprising:—

a substrate arranged within the deposition chamber, the substrate comprising a thin film formed thereupon by a process performed within the deposition chamber at the pre-determined pressure; and

an impurity cell for providing an impurity which is incorporated in the thin film during the same process which forms the thin film upon the substrate within the deposition chamber and at the same pre-determined pressure, the impurity cell is located entirely within the deposition chamber, the impurity cell is exposed to the same pre-determined pressure as the substrate during the process which forms the thin film incorporating the impurity, the impurity cell provides the impurity to the deposition chamber by desorption of the impurity from the impurity cell due to the pre-determined pressure in the deposition chamber during the process of forming the thin film, the impurity cell comprising;

a substantially solid material having exposed surfaces located entirely within the deposition chamber; and

an impurity-containing fluid adhered on said exposed surfaces.

10. (Original) The apparatus of claim 9, wherein the impurity is selected from the group consisting of carbon and germanium.
11. (Original) The apparatus of claim 9, wherein the thin film comprises epitaxial or polycrystalline silicon.
12. (Original) The apparatus of claim 11, wherein the impurity incorporated into the epitaxial or polycrystalline silicon thin film comprises carbon in a concentration from about 1×10^{13} atoms/cm³ to a maximum solubility of carbon in the silicon thin film.

Claims 13-15 (Canceled).

16. (Original) The apparatus of claim 9, wherein the deposition chamber comprises a vacuum chamber.

Claims 17-32. (Canceled)

33. (Previously Presented) The apparatus of claim 9, wherein the impurity-containing fluid comprises a liquid or a gas.
34. (Previously Presented) The apparatus of claim 33, wherein the gas comprises methane, ethane, propane or butane.
35. (Currently Amended) The apparatus of claim 33, wherein the liquid comprises a liquid alkane selected from the group consisting of pentane, hexane, heptane, octane, or nonane.
36. (Previously Presented) The apparatus of claim 9, wherein a layer of the impurity-

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containing fluid is adhered on said exposed surfaces.

37. (Previously Presented) The apparatus of claim 9, wherein the substantially solid material comprises porous, curvaceous or pitted features.
38. (Previously Presented) The apparatus of claim 9, wherein the substantially solid material comprises metal, ceramic, Teflon, stainless steel, alumina, silica or zirconia.
39. (Previously Presented) The apparatus of claim 9 further comprising:
 - an enclosure in the deposition chamber, the impurity cell located in the enclosure;
 - and
 - an impurity source coupled to the enclosure.
40. (Previously Presented) The apparatus of claim 39, wherein the enclosure and the impurity source are coupled by a connector.
41. (Previously Presented) The apparatus of claim 40, wherein the connector includes a valve, wherein when the valve is in one state the enclosure and the impurity source are isolated, and when the valve is in another state the impurity cell can be charged by the impurity source.
42. (Previously Presented) The apparatus of claim 39, wherein the impurity source is external to the deposition chamber.

43. (New) A furnace vacuum deposition system comprising:

- a process chamber maintained at a substantially uniform process chamber pressure of about 200 mTorr or less;

- a substrate pedestal for holding a plurality of semiconductor wafers within the process chamber, the semiconductor wafers comprising a layer of silicon formed thereupon by a process performed within the process chamber at the process chamber pressure; and

- an impurity cell for providing carbon which is incorporated in the layer of silicon during the same process which forms the layer of silicon upon each of the semiconductor wafers within the process chamber and at the same process chamber pressure, the impurity cell is located entirely within the process chamber, the impurity cell is exposed to the same process chamber pressure as the semiconductor wafers during the process which forms the layer of silicon incorporating carbon, the impurity cell is not coupled to any gas inlet, the impurity cell provides carbon to the process chamber by desorption of carbon from the impurity cell due to the process chamber pressure during the process of forming the layer of silicon, the impurity cell comprising:

 - a substantially solid material having exposed surfaces located entirely within the process chamber; and

 - a carbon-containing fluid adhered on said exposed surfaces.